

Application No.: 09/890,784

Docket No.: 21499-00049-US

LISTING OF CLAIMS WITH STATUS INDICATOR**In the Claims**

Claims 1-16 and 19-20 are amended in this Amendment

Claims 21-30 are newly added.

1. (currently amended) A polymer dispersion[, characterized in that it consists of the following components, based on the solids content of the product] prepared according to the following process comprising:

a) providing from 5 to 50%[, preferably from 5 to 40%] by weight of starch with a degree of substitution [(DS), relative to the cationic or anionic substituents, of] from 0.01 to 1 relative to at least one member selected from the group consisting of cationic or anionic substituents and having an intrinsic viscosity[, when cationized and/or anionized, of >] of greater than 1.0 dl/g[, when substituted; and

b) combining the starch with water and [from] 50 to 95%[, preferably from 60 to 95%,] by weight of a monomer mixture comprising at least one vinyl monomer, wherein the percents by weight are based on the solid content of the dispersion, and the film forming temperature of the polymer[, which comprises these components, being] formed from the monomer mixture is from -50 to 200°C[, preferably from 0 to 100°C, more preferably from 0 to 70°C and most preferably from 10 to 50°C, and

c) water].

2. (currently amended) The polymer dispersion according to claim 1, [characterized in that] wherein the degree of substitution of the starch is from 0.04 to 1.0 and the intrinsic viscosity is from 1.5 to 15 dl/g.

3. (currently amended) The polymer dispersion according to claim 1, wherein the film forming temperature [of the polymer formed from the monomer mixture] is from 10 to 50°.

4. (currently amended) The polymer dispersion according to claim 1, wherein the monomer mixture [consists of] comprises from 40 to 70% of acrylates and from 30 to 60% of styrene.

5. (currently amended) The polymer dispersion according to claim 1, wherein [it consists of] the dispersion comprises:

from 5 to 50% of starch,

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from 0 to 19% of acrylonitrile,
from 10 to 60% of acrylates, [and]
from 10 to 60% of styrene, and water.

6. (currently amended) The polymer dispersion according to claim 5, [characterized in that it consists of] wherein the dispersion comprises

from 15 to 40%, [preferably from 15 to 35%] of starch
from 5 to 19% of acrylonitrile,
from 20 to 50% of acrylates, and
from 20 to 40% of styrene, and water.

7. (currently amended) The polymer dispersion according to claim 1, [characterized in that it consists] consisting essentially of

20% of starch with a degree of substitution of about 0.05 and an intrinsic
viscosity of from 3 to 15 dl/g,
19% of acrylonitrile,
30% of acrylates, [and]
31% of styrene, and water.

8. (currently amended) [A process for producing the] The polymer dispersion according to claim 1, [characterized in that a monomer mixture comprising at least one vinyl monomer is copolymerized in an aqueous solution of a starch, and the polymer thus formed has a] wherein the film forming temperature [of from -50 to 200°C, preferably from 0 to 100°C, more preferably] is from 0 to 70°C [and most preferably from 10 to 50°C].

9. (currently amended) The [process] polymer dispersion according to claim [8]1, [characterized in that] wherein the starch is dissolved in an aqueous alkaline solution at a temperature of over 60°C.

10. (currently amended) The [process] polymer dispersion according to claim [8, characterized in that during the polymerization, the] 1, wherein the polymer is formed at a temperature [is] from 70 to 90°C and [the] at a pH [is] below 7.

11. (currently amended) The process according to claim [8, characterized in that an]1, wherein the starch is anionized [and/or a], cationized [starch is used], or anionized and cationized.

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12. (currently amended) The [use of the] polymer dispersion according to claim 1, wherein the polymer dispersion is used in paper manufacture.

13. (currently amended) The [use of the] polymer dispersion according to claim 1, wherein the polymer dispersion is used as a surface sizing additive for paper.

14. (currently amended) The [use of the] polymer dispersion according to claim 1, wherein the polymer dispersion is used as a wet and dry-strengthener for paper which is added to the wet end of the paper machine.

15. (currently amended) The [use of the] polymer dispersion according to claim 1, wherein the polymer dispersion is used as a pulp size.

16. (currently amended) The polymer dispersion according to claim 1 wherein the film forming temperature [of the polymer formed from the monomer mixture] is from 20 to 50°C.

17. (currently amended) The polymer dispersion according to claim 2, wherein the monomer mixture [consists of] comprises from 40 to 70% of acrylates and from 30 to 60% of styrene.

18. (currently amended) The polymer dispersion according to claim 3, wherein the monomer mixture [consists of] comprises from 40 to 70% of acrylates and from 30 to 60% of styrene.

19. (currently amended) The polymer dispersion according to claim 1, wherein [it consists of] the dispersion comprises:

- from 5 to 40% of starch,
- from 0 to 19% of acrylonitrile,
- from 10 to 60% of acrylates, [and]
- from 10 to 60% of styrene, and water.

20. (currently amended) The polymer dispersion according to claim 2, wherein [it consists of] the dispersion comprises:

- from 5 to 40% of starch,
- from 0 to 19% of acrylonitrile,
- from 10 to 60% of acrylates, [and]
- from 10 to 60% of styrene, and water.

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21. (New) The polymer dispersion according to claim 1, wherein the starch accounts for 5 to 40% of the solids content, and the monomer mixture accounts for 60 to 95% of the solids content.

22. (New) The polymer dispersion according to claim 1, wherein the film forming temperature is selected from a temperature in a temperature range selected from the group consisting of 0 to 100°C, 0 to 70°C, and 10 to 50°C.

23. (New) The polymer dispersion according to claim 22, wherein the temperature range is 0 to 70°C.

24. (New) The polymer dispersion according to claim 8, wherein the film forming temperature is from 10 to 50°C.

25. (New) The polymer dispersion according to claim 1, wherein the starch is cationized and is prepared by contacting native starch with a cationizing chemical containing a quaternary nitrogen.

26. (New) The polymer dispersion according to claim 25, wherein the cationizing chemical is a 1,3-epoxy quaternary or 1,3 hydrochloride.

27. (New) The polymer dispersion according to claim 6, wherein the starch is cationized and is prepared by contacting native starch with a cationizing chemical containing a quaternary nitrogen.

28. (New) The polymer dispersion according to claim 1, wherein the starch is cationized to provide a degree of substitution from 0.01 to 0.08.

29. (New) The polymer dispersion according to claim 1, wherein the starch is cationized to provide a degree of substitution from 0.1 to 0.5.

30. (New) The polymer dispersion according to claim 6, wherein the degree of substitution of the starch is from 0.04 to 1.0 and the intrinsic viscosity is from 1.5 to 15 dl/g.